

AB6

BOX PCT

Attorney Docket No. 24759

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

HÖNIG, Erhard

Serial No. Not Yet Assigned

Filed: August 23, 2001

For: **METHOD AND APPARATUS FOR APPLYING A PLASTIC EDGE
STRIP TO A PLATE-LIKE WORKPIECE AND SUCH A
WORKPIECE**

JC971 U.S. PRO
09/938331
08/23/01



REQUEST FOR PRIORITY UNDER 35 U.S.C. §119

Commissioner of Patents
Washington, D.C. 20231

Sir:

In the matter of the above-captioned application, notice is hereby given that the Applicant claims as priority date March 10, 1999, the filing date of the corresponding application filed in SOUTH AFRICA, bearing Application Number 99/1940. Applicant also claims as priority date July 8, 1999, the filing date of the corresponding application filed in SOUTH AFRICA, bearing Application Number 99/4442.

A Certified Copy of the corresponding applications are submitted herewith.

Respectfully submitted,

NATH & ASSOCIATES PLLC

Date: August 23, 2001

By: *Gary M. Nath*
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GMN/lss (Priority)

Sertifikaat

PATENTKANTOOR

DEPARTEMENT VAN HANDEL
EN NYWERHEID

REPUBLIEK VAN SUID-AFRIKA



REPUBLIC OF SOUTH AFRICA

Certificate

PATENT OFFICE

DEPARTMENT OF TRADE
AND INDUSTRY

Hiermee word gesertifiseer dat
This is to certify that

the documents annexed hereto are true copies of:

Application forms P.1 and P.3, provisional specification and drawings of South African Patent Application No. 99/4442 as originally filed in the Republic of South Africa on 8 July 1999 in the name of PLASTRIM INVESTMENTS CC for an invention entitled: "THE EDGING OF WOODEN BOARDS".

Jc971 U.S. PRO
09/938331
08/23/01

Getekken te PRETORIA in die Republiek van Suid-Afrika, hierdie
Signed at PRETORIA in the Republic of South Africa, this

dag van
day of

27 July 2001

Registrateur van Patente
Registrar of Patents

REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978
APPLICATION FOR A PATENT AND
ACKNOWLEDGEMENT OF RECEIPT
(Section 30(1) Regulation 22)

PUBLIC RECORDS
REPUBLIC OF SOUTH AFRICA
FORM P.1 REVENUE
(to be lodged in duplicate)

-8.7.99

R 060.00

THE GRANT OF A PATENT IS HEREBY REQUESTED BY THE UNDERTHEMENTIONED APPLICANT
ON THE BASIS OF THE PRESENT APPLICATION FILED IN DUPLICATE

INNOMSTATE
REPUBLIEK VAN SUID AFRIKA

21 01 PATENT APPLICATION NO

994442

71 FULL NAME(S) OF APPLICANT(S)

PLASTRIM INVESTMENTS CC

ADDRESS(ES) OF APPLICANT(S)

100 St Georges Street, Newlands,
Gauteng, Republic of South Africa

54 TITLE OF INVENTION

"THE EDGING OF WOODEN BOARDS"

Only the items marked with an "X" in the blocks below are applicable.

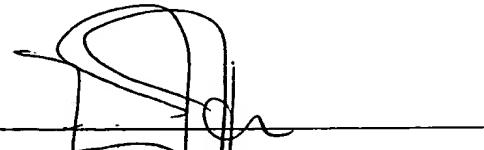
- THE APPLICANT CLAIMS PRIORITY AS SET OUT ON THE ACCOMPANYING FORM P.2. The earliest priority claimed is
- Country: No: Date:
- THE APPLICATION IS FOR A PATENT OF ADDITION TO PATENT APPLICATION NO 21 01
- THIS APPLICATION IS A FRESH APPLICATION IN TERMS OF SECTION 37 AND BASED ON
- APPLICATION NO 21 01

THIS APPLICATION IS ACCCOMPANIED BY:

- A single copy of a provisional specification of 10 pages
- Drawings of 2 sheets
- Publication particulars and abstract (Form P.8 in duplicate) (for complete only)
- A copy of Figure of the drawings (if any) for the abstract (for complete only)
- An assignment of invention
- Certified priority document(s). (State quantity)
- Translation of the priority document(s)
- An assignment of priority rights
- A copy of Form P.2 and the specification of RSA Patent Application No 21 01
- Form P.2 in duplicate
- A declaration and power of attorney on Form P.3
- Request for ante-dating on Form P.4
- Request for classification on Form P.9
- Request for delay of acceptance on Form P.4
- Extra copy of informal drawings (for complete only)

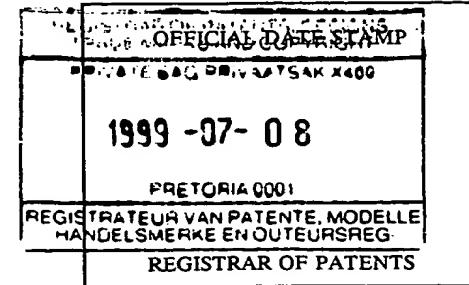
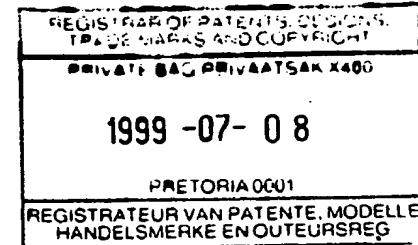
74 ADDRESS FOR SERVICE: Adams & Adams, Pretoria

Dated this 8th day of July 1999



ADAMS & ADAMS
APPLICANTS PATENT ATTORNEYS

The duplicate will be returned to the applicant's address for service as proof of lodging but is not valid unless endorsed with official stamp



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PRETORIA

REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978
DECLARATION AND POWER OF ATTORNEY
(Section 30 - Regulation 8, 22(i)(c) and 33)

FORM P.3

PATENT APPLICATION NO	
21	01
994442	

A&A Ref: V13486 AL

LODGING DATE	
22	8 JULY 1999

FULL NAME(S) OF APPLICANT(S)	
71	PLASTRIM INVESTMENTS CC

FULL NAME(S) OF INVENTOR(S)	
72	HONIG, ERHARD

EARLIEST PRIORITY CLAIMED	COUNTRY	NUMBER	DATE
	33 ZA	31 NIL	32 NIL

NOTE: The country must be indicated by its International Abbreviation - see schedule 4 of the Regulations

TITLE OF INVENTION	
54	"THE EDGING OF WOODEN BOARDS"

* I/We Honig, Erhard
hereby declare that :-

1. I/we am/are the applicant(s) mentioned above;
- ** 2. I/we have been authorized by the applicant(s) to make this declaration and have knowledge of the facts herein stated in the capacity of Member
- *** 3. the inventor(s) of the abovementioned invention is/are the person(s) named above and the applicant(s) has/have acquired the right to apply by virtue of an assignment from the inventor(s);
- 4. to the best of my/our knowledge and belief, if a patent is granted on the application, there will be no lawful ground for the revocation of the patent;
- **** 5. this is a convention application and the earliest application from which priority is claimed as set out above is the first application in a convention country in respect of the invention claimed in any of the claims; and
6. the partners and qualified staff of the firm of ADAMS & ADAMS, patent attorneys, are authorised, jointly and severally, with powers of substitution and revocation, to represent the applicant(s) in this application and to be the address for service of the applicant(s) while the application is pending and after a patent has been granted on the application.

SIGNED THIS 7th DAY OF JULY 1999

(no legalization necessary)

- * In the case of application in the name of a company, partnership or firm, give full names of signatory/signatories, delete paragraph 1, and enter capacity of each signatory in paragraph 2.
** If the applicant is a natural person, delete paragraph 2.
*** If the right to apply is not by virtue of an assignment from the inventor(s), delete "an assignment from the inventor(s)" and give details of acquisition of right.
**** For non-convention applications, delete paragraph 5.

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PATENT ATTORNEYS
PRETORIA

FORM P6

REPUBLIC OF SOUTH AFRICA
Patents Act, 1978

PROVISIONAL SPECIFICATION
(Section 30 (1) - Regulation 27)

21	01	OFFICIAL APPLICATION NO
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22	LODGING DATE
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994442

8 July 1999

71	FULL NAME(S) OF APPLICANT(S)
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PLASTRIM INVESTMENTS CC

72	FULL NAME(S) OF INVENTOR(S)
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HÖNIG, ERHARD

54	TITLE OF INVENTION
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"THE EDGING OF WOODEN BOARDS"

994442

THIS INVENTION relates to an apparatus for applying a plastic edge strip to a wooden board, a method of applying the edge strip to the board, and a wooden board which has had the edge strip applied thereto by means of the apparatus or by the method.

According to the invention there is provided an apparatus for applying a plastic edge strip to a wooden board which includes

an extrusion means for extruding a feedstock strand of a synthetic plastics material; and

a rotatable forming and applying element for forming the feedstock strand into a formed strip with a desired profile and applying it to an edge of the board.

Further according to the invention there is provided a method of applying a plastic edge strip to a wooden board, which includes

extruding a feedstock strand of a synthetic plastics material; and

forming the extruded feedstock strand into a formed strip with a desired profile and applying it to an edge of the board by means of a rotatable forming element.

The forming element may be wheel-like or roller-like having forming formations at its rim. For convenience, such a forming element is hereinafter referred to as a "roller". It will thus be appreciated by those skilled in the art that the forming roller may have a recessed rim in which the forming formations are located.

The invention extends still further to a wooden board which has had a plastic edge strip applied thereto by means of the apparatus or by the method of the invention.

The plastic may be a thermoplastic material and may, for example, be PVC, polystyrene, polyurethane or any other suitable thermoplastic synthetic plastics material.

It will be appreciated that the profile of the extruded feedstock strand is, to a large extent, irrelevant, and the desired profile is provided by the feedstock strand being squeezed between the forming roller and the edge of the board. The profile of the formed edge strip is not determined by the head or aperture of the extrusion means.

The forming formations may include projections and recesses to provide the surface of the rolled, profiled strip with ornamentation or a pattern as well as the profile.

The feedstock strand may be extruded onto the edge of the board, the feedstock strand then being squeezed between the edge and the forming roller.

The edge of the board onto which the formed strip is to be bonded may be coated with a suitable adhesive or bonding layer. The apparatus may thus have an adhesive applicator.

Persons skilled in the art will be aware that an adhesive layer could be applied to the edge of the board in a prior operation and the adhesive is then activated, by heat or in any other suitable way depending on the nature of the adhesive, immediately before the feedstock strand is applied to the edge.

The forming roller may be freely rotatable or it may be driven.

A surface ornamental layer may also be applied onto an outer surface of the formed strip. Conveniently, such an ornamental layer may be provided by a foil which is passed between the strip and the forming roller. The foil may be applied onto a part of the formed strip or across the entire surface of the formed strip. The foil may be carried on a carrier which is removed downstream of the forming roller.

It will further be appreciated by those skilled in the art that the cross sectional area of the extruded feedstock strand of feedstock material may be substantially the same as that of the formed strip. However, the extruded feedstock strand may have slightly more material than that of the desired profile,

so that there is a small ribbon on either side of the formed strip. The apparatus may then have a stripping station to remove the ribbons.

The apparatus may have a support structure for supporting the board whilst the edge strip is applied thereto. The support structure may support the board in a generally horizontal or vertical orientation such that the edge is either vertically or horizontally oriented. If the edge is vertically oriented, the forming roller will be rotatable about a vertical axis whereas it will be rotatable about a horizontal axis if the edge is horizontally oriented.

A displacement means may also be provided for displacing the board relatively to the forming roller and an extrusion head of the extrusion means. Conveniently, the extrusion head and forming roller remain in position whilst the board is displaced relative thereto. It will be appreciated that the board will be displaced linearly if the edge is straight, or along a curved path if the edge is curved. Such a displacement means may displace the support structure itself or the board.

Instead, the board may be freely displaceable on the support structure and may be displaced by the forming roller, there being suitable frictional engagement between the forming roller and the board, and the forming roller being driven by a motor.

The board may be displaced at the same speed as the circumferential speed

of the forming roller.

An urging means may also be provided to urge the edge of the board against the forming roller. This may be facilitated by pressure wheels that are spaced from the forming roller a distance equal to the width of the board and are rotatable about parallel axes.

A guide wheel may also be provided between the forming roller and the extrusion head for guiding the feedstock strand between the edge of the board and the forming roller.

A cooling station may also be provided downstream of the forming roller.

The edge of the board may have a suitable profile.

Those skilled in the art will further understand that the board may have any length and width dimensions and the term "board" includes a "plank".

The invention is now described, by way of an example with reference to the accompanying drawings, in which:-

Figure 1 shows schematically a plan view of an apparatus in accordance with the invention for applying a plastic edge strip to a wooden board.

Figure 2 shows schematically a side view of a roller forming part of the apparatus of Figure 1 and how the edge of the board and a feedstock strand interact therewith.

Referring to Figure 1, an apparatus for applying a plastic edge strip 12 to an edge 14 of a wooden board 16 is designated generally by reference numeral 10. The apparatus 10 has an extruder 18 which provides a feedstock strand 20 that has a circular cross section as is more clearly shown in Figure 2. The feedstock strand 20 is of soft PVC.

Immediately downstream of the extruder 18 and close enough that the feedstock strand 20 does not cool much and remains sufficiently hot to be moulded, there is a moulding station 22.

The moulding station 22 has a roller 24. The roller 24 has a concave rim 26 as is seen more clearly in Figure 2. As will be appreciated from what is said below, the concave rim 26 defines a moulding cavity together with the edge 14. Thus, the roller 24 is profiled to mould the feedstock strand 20 to have the desired profile. As seen in Figure 2 the feedstock strand 20 is moulded onto the edge 14 of the board 16 into a formed strip 28 which follows the profile and contour of the edge 14 of the board 16 and is securely adhered thereto.

As is seen in Figure 2, the concave rim 26 is complementarily shaped to the edge 14 of the board 16.

It will further be appreciated that the roller 24 has fairly sharp sides 30 and the roller 24 and the edge 14 are spaced so that there is a gap of about 0,5 mm between the borders of the edge 14 and the sides 30.

A guide wheel 32 is positioned between the extruder 18 and the roller 24 to guide the strand 20 between the roller 24 and the edge 14.

The board 16 is supported in a horizontally extending manner on support rollers (not shown) with the edge 14 extending vertically. Pressure wheels 34, which are rotatable about vertical axes urge the edge 14 of the board 16 against the roller 24. The pressure wheels 34 are mounted in an adjustable manner on a bar 44 so that the spacing between them and the roller 24 is variable. The roller 24 is also rotatable about a vertical axis that is parallel to the axes of the pressure wheels 34. A feed wheel 36 engages the upper surface of the board 16 to drive it in the direction of arrows 38 so that the edge 14 moves linearly past the roller 24. The roller 24 may be rotated by engagement with the edge 14 or may be driven at the same circumferential speed as the board 16.

Thus, the edge 14 and the roller 24 define between them a progressive moulding cavity as the roller 24 rotates and the edge 14 moves past it. The feedstock strand 20 is fed onto the edge 14 to be moulded into the formed strip 28 by the progressive moulding cavity.

It will be appreciated further that the feedstock strand 20 is drawn between

the roller 24 and the edge 14 and is squeezed to have the desired profile as the roller 24 rotates.

It will be understood that the progressive moulding cavity has a cross sectional area and the feedstock strand 20 has a slightly larger cross sectional area so that there is sufficient material to fill the progressive moulding cavity and have a small excess. This small excess is then squeezed out between the roller 24 and the edge 14 to provide side ribbons 40. These are easily trimmed off and removed by a stripping station (not shown).

The formed strip 28 is bonded to the edge 14, bonding being improved by an adhesive applied by an applicator 42. The adhesive is a heat activated, solvent based polyurethane such as that supplied by Genkem, under licence from Helmilin Werke, with code VAW 595.

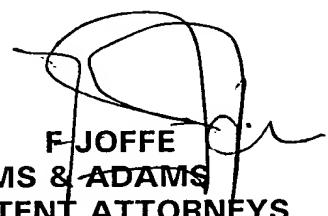
The formed strip 28 travels past a cooling station 46 which uses either air or water to cool the formed strip 28.

A woodgrain ornamental foil 48 is supplied from a coil 50 next to the roller 24 between the feedstock strand 20 and the roller 24. The foil 48 is bonded by heat and pressure as it passes under the roller 24 onto the outer surface of the formed strip 28.

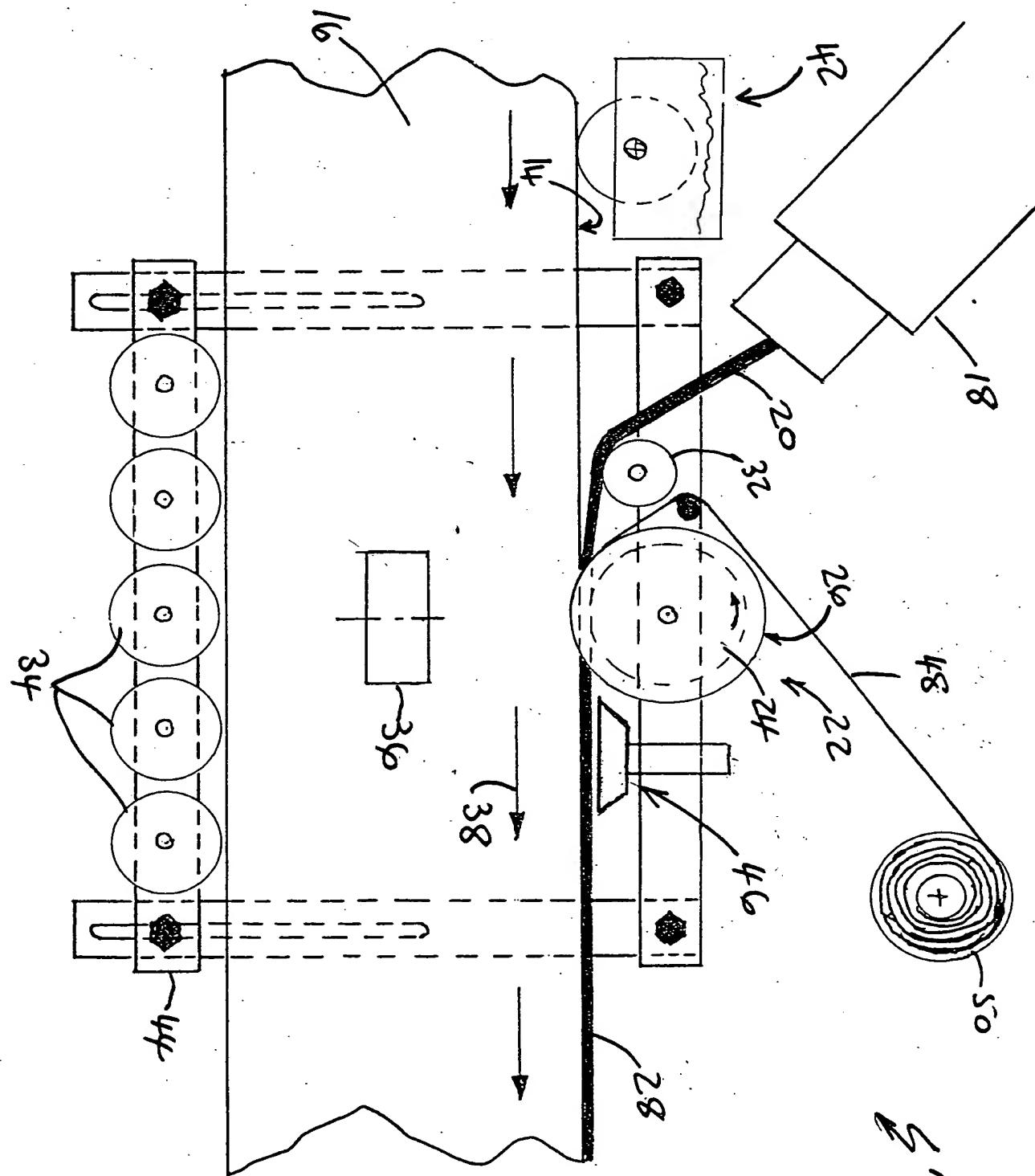
By means of the invention an edge strip is securely bonded to the edge of

a wooden board, which may be fibre or chip board, in an efficient, economical and effective manner. The edge strip may also be provided with any suitable profile, pattern and ornamentation.

DATED THIS 8th DAY OF JULY 1999



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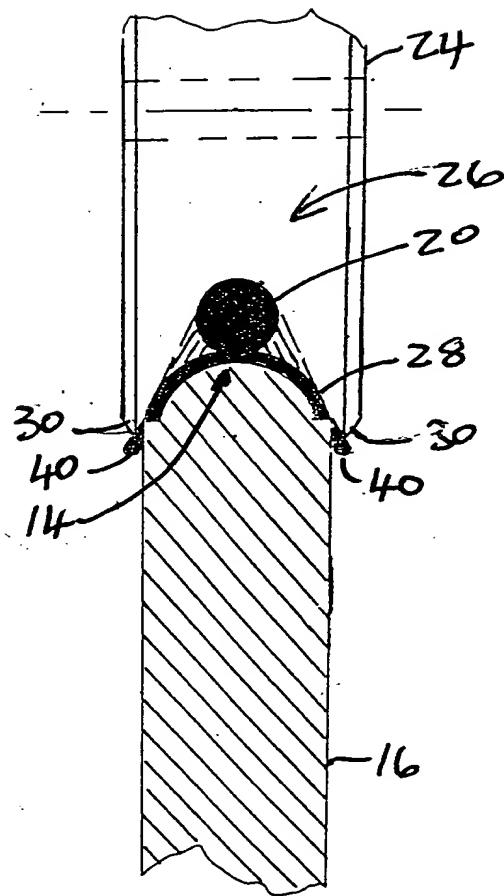
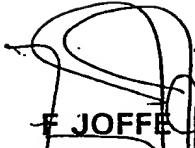


FIG. 2


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